

FIG. 1

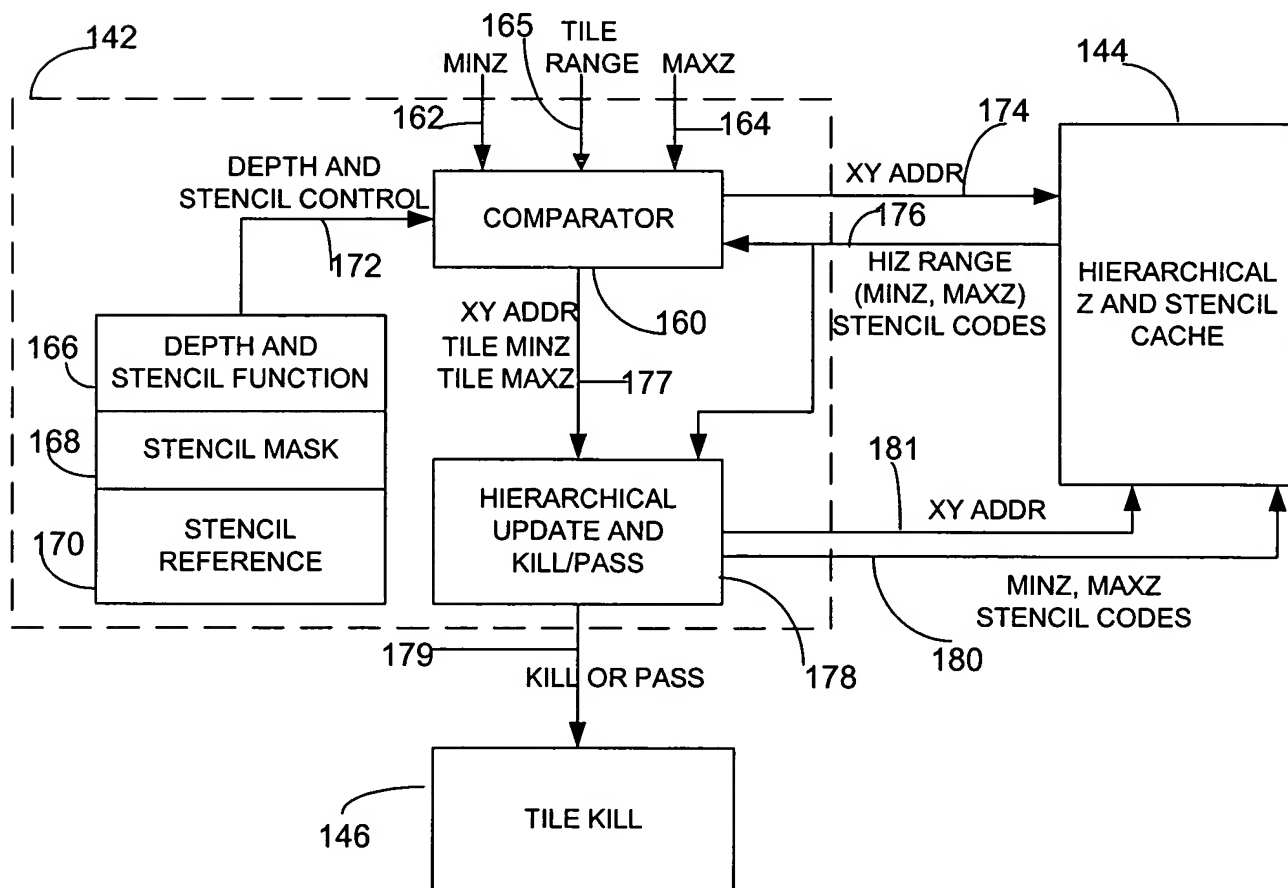


FIG. 4

"Method and Apparatus for Hierarchical Z Buffering and
Stenciling"

Inventors: Larry D. Seiler et al.
Attorney Docket No.: 00100.02.0004

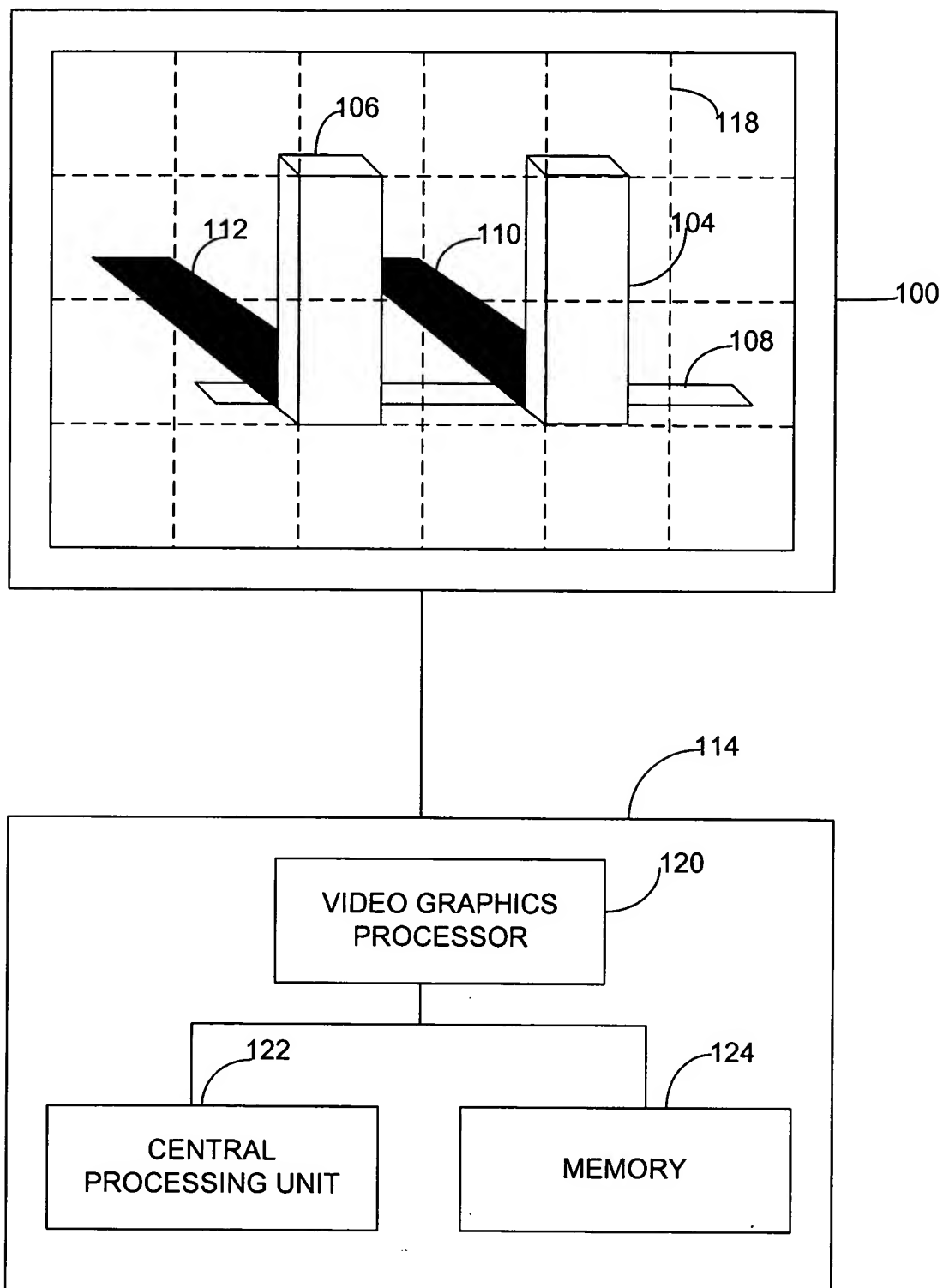


FIG. 2

"Method and Apparatus for Hierarchical Z Buffering and
Stenciling"

Inventors: Larry D. Seiler et al.
Attorney Docket No.: 00100.02.0004

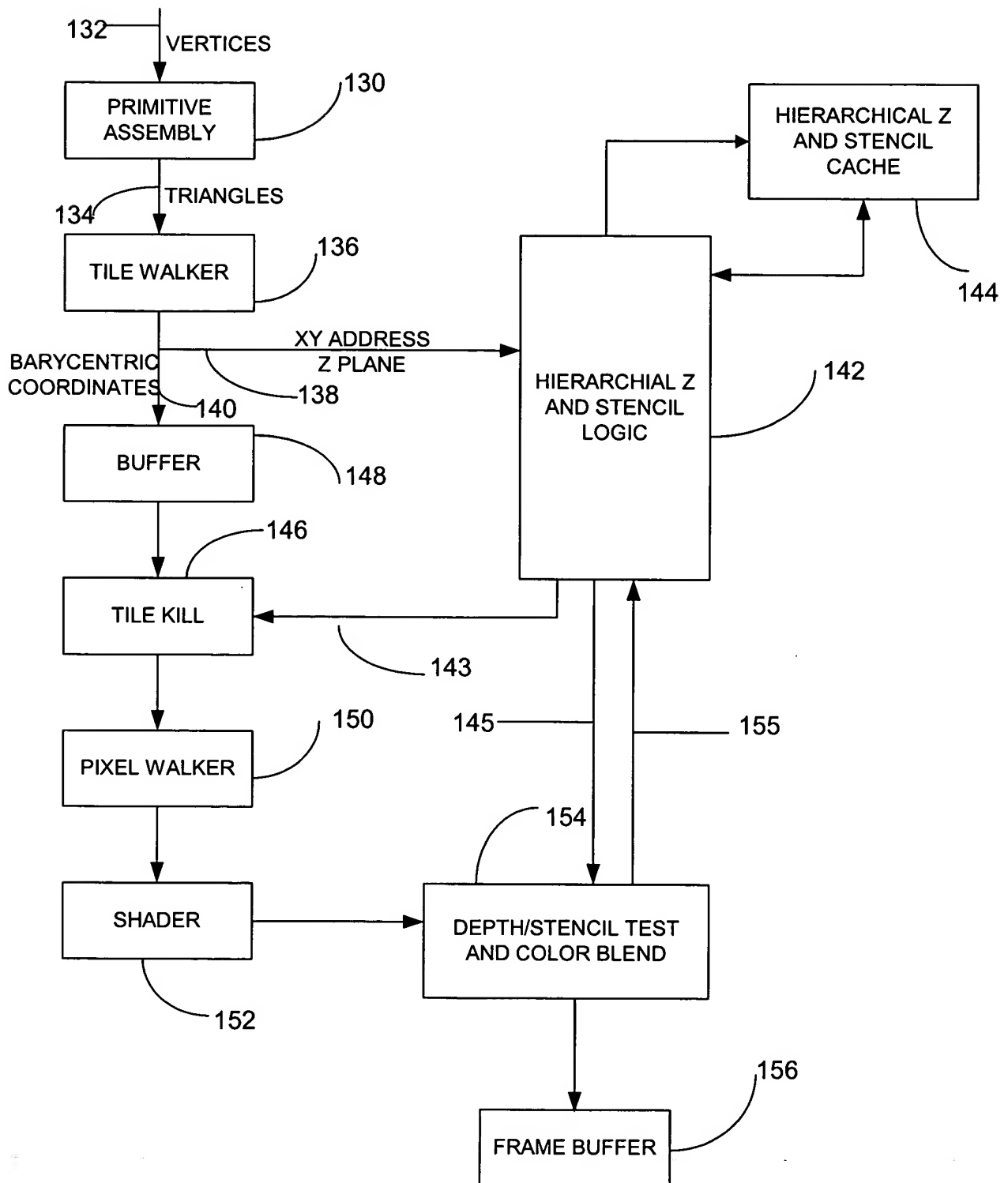


FIG. 3

"Method and Apparatus for Hierarchical Z Buffering and Stenciling"

Inventors: Larry D. Seiler et al.
Attorney Docket No.: 00100.02.0004

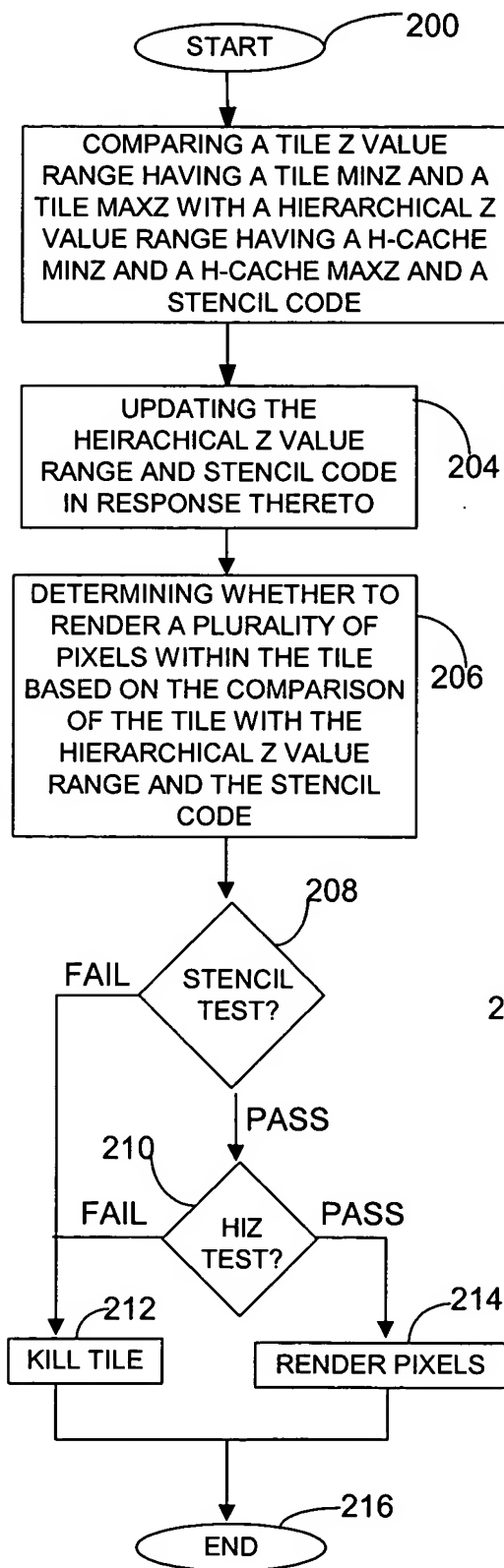


FIG. 5

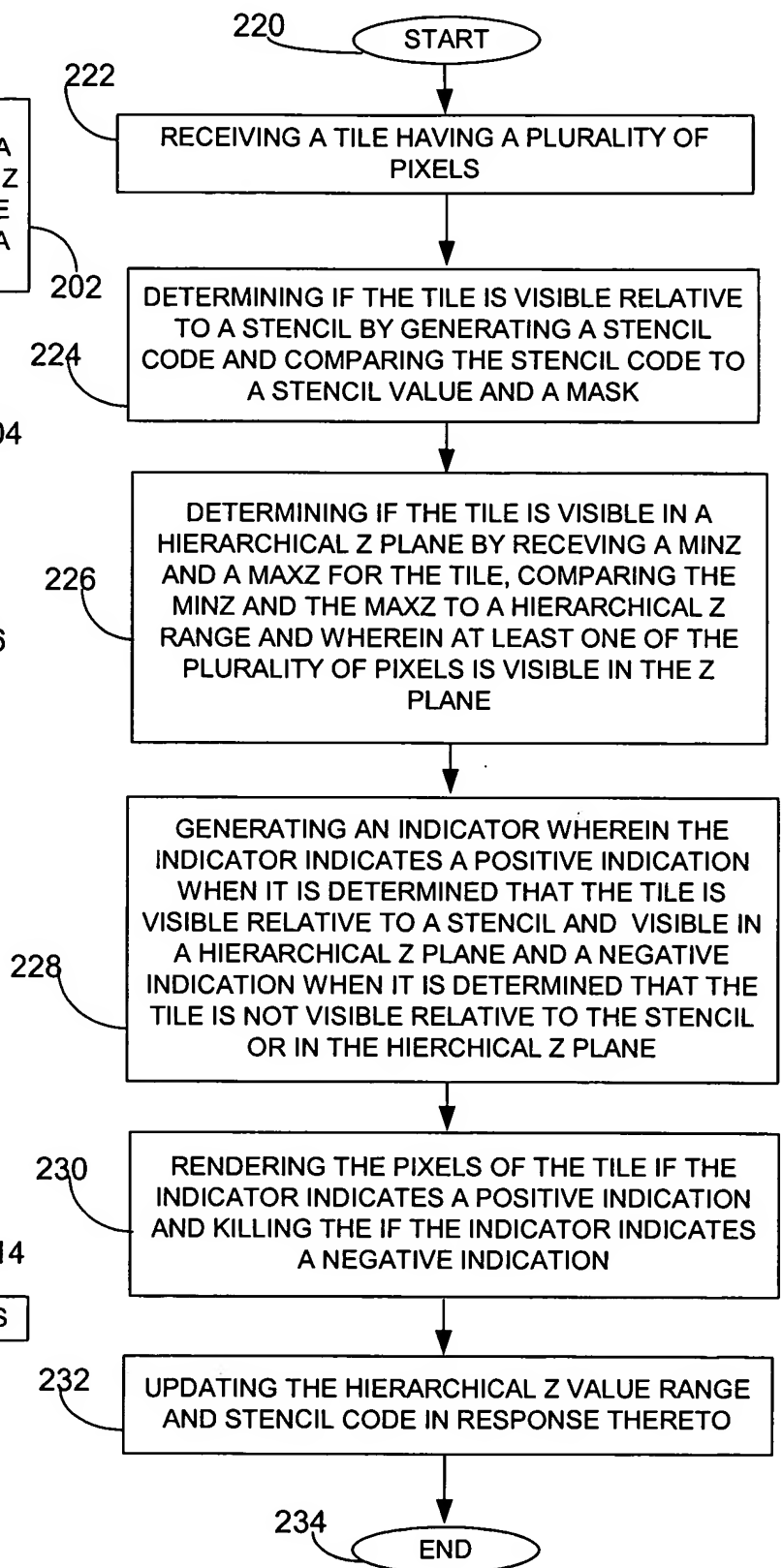


FIG. 6

"Method and Apparatus for Hierarchical Z Buffering and Stenciling"

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Attorney Docket No.: 00100.02.0004

><=	Name	Description
000	Background	Replace all stencil values with background when reading the tile from memory
001	Equal	Background value is equal to all stencil values.
010	Less	Background value is less than all stencil values.
011	Lequal	Background value less than or equal to all stencil values.
100	Greater	Background value is greater than all stencil values.
101	Gequal	Background value is equal to or greater than all stencil values.
110	Notequal	Background value is greater than or less than all stencil values, but not equal to any stencil values.
111	Unknown	Nothing is known about how the background value compares to the stencil values.

FIG. 7

Stencil Code	Stencil Function							
	Never	Always	Less	Lequal	Equal	Gequal	Greater	Nequal
Bkg	Fail	Pass	Fail	Pass	Pass	Both	Fail	Fail
Equal	Fail	Pass	Fail	Pass	Pass	Both	Fail	Fail
Less	Fail	Pass	Pass	Pass	Fail	Fail	Fail	Pass
Lequal	Fail	Pass	Both	Pass	Both	Both	Fail	Both
Greater	Fail	Pass	Fail	Fail	Fail	Pass	Pass	Pass
Gequal	Fail	Pass	Fail	Both	Both	Pass	Both	Both
Nequal	Fail	Pass	Both	Both	Fail	Both	Both	Pass
Unknwn	Fail	Pass	Both	Both	Both	Both	Both	Both

FIG. 8

"Method and Apparatus for Hierarchical Z Buffering and Stenciling"

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Attorney Docket No.: 00100.02.0004

Stencil Code	Stencil Operation									
	Keep	Zero Bkg>0	Zero Bkg 0	Replace	Incr Bkg < ~1	Incr Bkg ~1	Decr Bkg>0	Decr Bkg 0	Invert Bkg hi 1	Invert Bkg hi 0
Bkg	Bkg	Less	Equal	Bkg	Greater	Equal	Less	Equal	Less	Greater
Equal	Equal	Less	Equal	Equal	Greater	Equal	Less	Equal	Less	Greater
Less	Less	Less	Equal	Equal	Lequal	Lequal	Less	*	Unknown	Greater
Lequal	Lequal	Less	Equal	Equal	Unknown	Lequal	Less	*	Unknown	Greater
Greater	Greater	Less	Equal	Equal	Greater	*	Gequal	Gequal	Less	Unknown
Gequal	Gequal	Less	Equal	Equal	Greater	*	Unknown	Gequal	Less	Unknown
Nequal	Nequal	Less	Equal	Equal	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Unknown	Unknown	Less	Equal	Equal	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

FIG. 9

**"Method and Apparatus for Hierarchical Z Buffering and
Stenciling"**

Inventors: Larry D. Seiler et al.
Attorney Docket No.: 00100.02.0004

Depth Comparison	Depth Function							
	Never	Always	Less	Lequal	Equal	Gequal	Greater	Nequal
Pmax < Tmin	Fail Tmin: Tmax	Pass Pmin: Tmax	Pass Pmin: Tmax	Pass Pmin: Tmax	Fail Tmin: Tmax	Fail Tmin: Tmax	Fail Tmin: Tmax	Pass Pmin: Tmax
Pman ≥ Tmin Pmin < Tmin Pmax ≤ Tmax	Fail Tmin: Tmax	Pass Pmin: Tmax	Both Pmin: Tmax	Both Pmin: Tmax	Both Tmin: Tmax	Both Tmin: Tmax	Both Tmin: Tmax	Both Pmin: Tmax
Pmin < Tmin Pmax > Tmax	Fail Tmin: Tmax	Pass Pmin: Pmax	Both Pmin: Tmax	Both Pmin: Tmax	Both Tmin: Tmax	Both Tmin: Pmax	Both Tmin: Pmax	Both Pmin: Pmax
Pmin > Tmin Pmax < Tmax	Fail Tmin: Tmax	Pass Tmin: Pmax	Both Tmin: Tmax	Both Tmin: Tmax	Both Tmin: Tmax	Both Tmin: Pmax	Both Tmin: Tmax	Both Tmin: Tmax
Pmin ≤ Tmax Pmin > Tmin Pmax > Tmax	Fail Tmin: Tmax	Pass Tmin: Pmax	Both Tmin: Tmax	Both Tmin: Tmax	Both Tmin: Tmax	Both Tmin: Pmax	Both Tmin: Pmax	Both Tmin: Pmax
Pmin > Tmax	Fail Tmin: Tmax	Pass Tmin: Pmax	Fail Tmin: Tmax	Fail Tmin: Tmax	Fail Tmin: Tmax	Pass Tmin: Pmax	Pass Tmin: Pmax	Pass Tmin: Pmax

FIG. 10